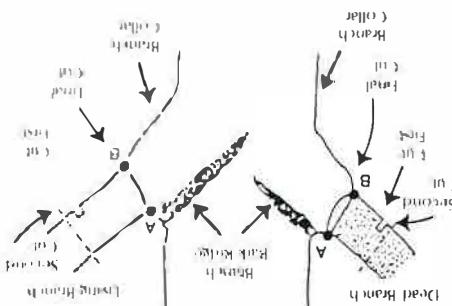


Figure 1 - Pruning guide.



for proper pruning cuts. Pruning paint is not needed for branch collar (see figure 1). Follow the steps shown in the proper order. First, locate the tree limb's tools and should be properly positioned and made All pruning cuts should be made with sharp tools. Prune your tree.

A few exceptions, winter is an excellent time to

the tree's structure as well as its appearance. With

spread of disease and insect pests. Pruning improves

dead and diseased branches helps prevent the

Regular pruning serves many purposes. Removing

regulators controlling water use. Always thoroughly

summers after leaves complete expansion. Never use

top of the soil. Fertilize trees in late spring or early

levels and application rates. Broadcast fertilizer on

Soil testing is recommended to determine fertilizer

growing sites can benefit from a suitable fertilizer.

Dogwoods in natural areas usually do not require

fertilization. However, trees in yards and restricted

conditions for certain diseases.

so that a good root system can be established. broken or damaged branches for the first few years from November through April. Prune off only and-burp and bare-root trees should be planted and any time if they are watered regularly. Bare-rooted or container-grown dogwoods can be your tree deeper than it grew in the nursery.

It is very easy to plant trees too deep. Dogwoods

are very shallow-rooted plants, so avoid planting

your tree deeper than it grew in the nursery.

is sufficient for good tree growth.

in most cases, the soil removed from the planting hole amends to the planting hole is unnecessary. In Current research has shown that the addition of soil and 3 feet in diameter, regardless of the tree size.

growth will result. Dig a hole at least 18 inches deep important. If this is not done at the outset, then poor preparing the planting site properly is extremely often wet.

at least partial shade. Avoid areas where the soil is from this condition. Good planting sites should have full sun. Marginal leaf poorly when exposed to cared for, they will grow poorly when exposed to even die. If dogwoods do not grow well and may drained areas, dogwoods do not grow well and may face much are present. When planted in poorly in forests where organic material and natural sur-

Dogwoods naturally grow as an understory plant

soil nurses. If you have any questions, contact your local nursery, your State forestry agency or Cooperative Extension Service.

many years, and how to maintain it in good health for the main points to consider when you select your homeowner's property. This brochure presents any homewoods are a valuable and enduring asset to heavy crop about other year.

dogwoods have the potential to flower with a delicate fragrance and site conditions. Generally, it takes 3 to 5 years before the first flowers are produced, then flowers almost yearly with a

age at which they begin flowering will vary with all dogwoods have the potential to flower. The May after full foliage has been attained.

than notched, it is similar to the native dogwood except that it's slightly scented white blossoms. Another dogwood to consider is the *Kousa* or Japanese dogwood, it's semi-double flowers. *Rubra* is the original pink dogwood, and *Fragrant Cloud* while *Pleena* has white semi-double flowers. *Chieftain* has deep red flowers characteristics. *Chieftain* has developed to highlight different cultivars have been planted in full sun with better results than the native dogwood. Other beauty is more tolerant to drought and heat than are other varieties and can be planted in full sun with a wide variety of dogwoods is available. The Bay

grow best in the shade of other hardwoods.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Tree native dogwood, *Cornus florida*, is a small, bushy tree reaching 15 to 30 feet in height. Its short trunk has several large, wide spreading branches that are best in the winter months.

Mulching is one of the easiest and most protective things you can do for your trees. A mulch is used for appearance, weed control, water conservation, erosion control and improvement of soil structure. Mulches also insulate the roots from cold or heat. Apply pine straw or bark 4 to 6 inches deep underneath the limb spread to achieve the above goals. A mulch also reduces the need for mowers and string trimmers next to the trunk, thus reducing injury from these tools.

MECHANICAL INJURY

A common mechanical injury to dogwoods is caused by lawnmowers hitting the base of the trunk (figure 2). Such injuries invite basal stemrot disease and insect borer infestation. Place a permanent barrier around the trunk to avoid injury.

Mulching around the base of the tree discourages weeds and reduces the need to mow close to the trunk. String trimmers pose a similar danger and will bruise or girdle the cambium, the vital layer of tissue under the bark. This damage is not easily detectable until sudden tree decline or leaf drop result.

Dogwoods and other woody ornamentals are very susceptible to herbicides. Distorted yellowing leaves can result from herbicide use. Browning or leaf scorch may also be observed (figure 3).



Figure 2 - Lawn mowers and string trimmers cause significant damage.



Figure 3 - Leafscorch is common on poorly managed dogwoods.

Spray equipment that has been used for herbicides should not be used to apply insecticides or fungicides to dogwoods.

In many cases, reduced growth results from chemical damage or mechanical injury. Discolored foliage and scorched leaves are usually followed by branch die-back and eventual death. Periods of stress brought on by drought heighten these symptoms. Identify the problem before attempting to solve it.

DOGWOOD DISEASES

Dogwood Anthracnose

Dogwood anthracnose causes leaf spots, stem cankers, and kills shoots. Infected trees, if not properly maintained, may decline. This disease should not be confused with spot anthracnose.

Initial symptoms are medium-large, purple-bordered leaf spots, and scorched tan blotches that

may enlarge to kill the entire leaf (figure 4). Blighted leaves often cling to stems after normal leaf drop in the fall (figure 5). Trunk sprouts occur during the latter stages of disease development. The fungus infects twigs and can grow down a limb and infect the main stem (figure 6). Cankers that form on the main stems can be detected when the bark is peeled back. Cankers are identified by distinct margins surrounded by healthy cambium tissue (figure 7).

Dogwood trees that are adjacent to natural stands of dogwoods may be more susceptible. Prune any dead wood in the tree before disease reaches the main trunk. Destroy the pruned wood to eliminate



Figure 4 - Leaf spots on dogwood caused by dogwood anthracnose.



Figure 5 - Blighted dogwood leaves cling to branches after infection by dogwood anthracnose.

any sources of fungus from the area. Water during droughts, protect the root zone with a mulch and fertilize according to soil analysis. Avoid fertilizers with a high nitrogen content. Fungicides registered for anthracnose on dogwoods can be used. These steps will keep the disease incidence low.

Do not transplant dogwoods into urban areas from trees dug in the woods. You may be transporting the disease into an area where it did not previously occur.



Figure 6 (left) - Dead shoot and stem canker caused by dogwood anthracnose.

Figure 7 (right) - Discoloration is evident when bark is cut away from twigs infected with dogwood anthracnose.

Spot Anthracnose

Flower bracts are usually infected first, but this kind of anthracnose also occurs on leaves, young shoots, and fruit.

The initial symptoms are small, reddish-purple leaf spots that are circular or elongated (figure 8). They are first noticed in early spring. The spots are usually $\frac{1}{25}$ th inch in diameter (pinhead size). The centers are yellowish, with brown or black margins. As additional infections occur, the spots become numerous and eventually merge, forming larger leaf spots.

Severely infected flower bracts usually fall from the plant prematurely. Those diseased bracts that do remain on the tree are generally small and distorted.

Infection from the bracts then moves to the foliage.

The leaf spots are usually circular, although they may be somewhat angular or elongated. The spot centers are yellow to grayish, with a dark purple border. The centers will eventually drop out. Young shoots and berries may develop elongated, scabby lesions that have a distinct purple border.

Spot anthracnose is caused by the fungus, *Elsinoe corni*. The fungus persists from year to year in infected twigs, fruit, and other tissues. If the weather is dry before or during the flowering period, very little disease will be observed. Infections will vary from year to year because of this dependency on free moisture.

In most cases, fungicide sprays are not needed, as this disease does not result in significant damage. If fungicides are used, apply them from bud swell through bloom.



Figure 8 - Spot anthracnose causes small, purple-bordered leafspots in the spring and may extend into the growing season.

Septoria Leaf Spot

The symptoms of septoria leaf spot include medium uniform, purplish spots, or lesions on the leaves. These lesions do not retain the deep, purple border, although the centers of these spots become grayish. This disease occurs near the end of the summer. Stressed or weakened trees are more susceptible than those growing on a natural site, or those in a healthy condition. Septoria leaf spot is generally more of a problem when wet conditions persist and humidity is high.

Botrytis Petal Blight

Botrytis Petal blight is caused by the fungus, *Botrytis cinerea*. This fungus affects foliage and green shoots as well as petals. Disease is generally observed during wet spring weather, often following winter injury. The fungus reproduces on diseased tissue during periods of high humidity. Spores are spread by wind and water.

Usually, this disease does not cause significant damage to warrant application of any fungicide. The best disease control is to keep plants healthy with regular pruning, watering, mulching and fertilization.

Trunk Canker

Basal trunk canker, caused by the fungus, *Phytophthora cactorum*, is a major problem for urban dogwoods and is generally associated with low, poorly-drained areas. Injuries caused by lawn mowers and insects are ideal sites for fungus infection.

The leaves of infected trees are stunted and generally turn red prematurely. The basal portion of the trunk sinks, causing constriction and decay. The bark eventually peels away, exposing the wood. Some bleeding from the canker can occur, and sprouting may occur below this damaged area. Avoid injury to the tree base, select proper planting sites and control insects to help reduce trunk canker disease.

INSECTS

Insect damage to dogwoods is very common. Most of the damage is considered minor; however, when other stress conditions are present, damage can be significant.

Dogwood Twig Borer and Clubgall Midge

Both of these insects cause tip dieback. Damage usually appears as withering leaves on branch tips during the growing season. For minor infestations prune and destroy dead twigs and branches yearly.